

IN THE CLAIMS:

Please amend claims 1, 2 and 5 as follows.

1. (Currently Amended) A spark-ignition engine controller used for a multi-cylinder spark-ignition engine performing a four cycle consisting of an intake stroke, a compression stroke, an expansion stroke, and an exhaust stroke at a predetermined phase difference in each cylinder, wherein a gas flow path is formed into a state of two-cylinder connection where, in at least a low-load low-speed range, determined by an operation condition identifier, burned gas discharged from a preceding cylinder, which is a cylinder in the exhaust stroke, of a pair of cylinders having an overlapping exhaust stroke and intake stroke is introduced into a following cylinder, which is a cylinder in the intake stroke, through an intercylinder gas channel, and exhaust gas discharged from the following cylinder is led to an exhaust passage; said spark-ignition engine controller comprising:

the operation condition identifier for determining an engine operation condition based on an engine speed and an engine load;

an intake air quantity control means for controlling an amount of air to be supplied to the preceding cylinder in such a manner that the air/fuel ratio based on the amount of fuel required to both of said preceding and the following cylinders becomes a stoichiometric air-fuel ratio in said both cylinders in the state of two-cylinder connection; and

a combustion controller including:

a fuel injection means for injecting fuel at a certain timing in which an amount of fuel injected to both of said preceding and following cylinders is determined in accordance with a required torque in the state of two-cylinder connection; and

an ignition controller for controlling an ignition timing;

said combustion controller which, during said two-cylinder connection, causes

combustion to be performed in said preceding cylinder at an air-fuel ratio which is leaner than the stoichiometric air-fuel ratio by a predetermined amount, and causes combustion in said following cylinder at a predetermined air-fuel ratio by feeding fuel to the lean air-fuel ratio burned gas introduced from said preceding cylinder,

said combustion controller performing control such that, in at least a part of an operating range in which said two-cylinder connection is set, combustion is performed in said following cylinder through compression ignition, and

said combustion controller controlling, in a low-load region among said operating range in which the two-cylinder connection is set, said injection controller and said ignition controller such that an air-fuel ratio of the preceding cylinder is set such that an excess air ratio of the preceding cylinder becomes ~~three or greater than~~ at least three and a combustion is performed in the following cylinder by spark ignition at an air-fuel ratio being equal to a stoichiometric air-fuel ratio.

2. (Currently Amended) The spark-ignition engine controller according to claim 1, wherein, a fuel amount injected to said both cylinders consisting of said preceding cylinder and said following cylinder is set such that a supplied fuel amount to the preceding cylinder is $1/3$ or less ~~than $1/3$~~ and a supplied fuel amount to the following cylinder is at least $2/3$ ~~or more than $2/3$~~ against the total amount of the fuel injected to said both cylinders and at this time stratified charge combustion is performed in the preceding cylinder in a low load operation range within the operation range where the two-cylinder connection is set.

3. (Original) The spark-ignition engine controller according to claim 1, wherein, in the low-load range within the operating range in which said two-cylinder connection is set, the ratio of the fuel injection quantity in said preceding cylinder is set to increase as the engine load increases.

4. (Original) The spark-ignition engine controller according to claim 1, wherein, in the low-load range within the operating range in which said two-cylinder connection is set, the fuel is injected to the preceding cylinder in compression stroke and the fuel is injected to the following cylinder in expansion stroke.

5. (Currently Amended) A multi-cylinder spark-ignition engine comprising:
a plurality of cylinders, each of which performs 4 cycles, consisting of an intake stroke, a compression stroke, an expansion stroke, and an exhaust stroke at a predetermined phase difference in each cylinder;

a gas flow path which is formed into a state of two-cylinder connection: including an intercylinder gas channel and an exhaust passage such that, in at least a low-load low-speed range, determined by an operation condition identifier, burned gas discharged from a preceding cylinder, which is a cylinder in the exhaust stroke, of a pair of cylinders having an overlapping exhaust stroke and intake stroke is introduced into a following cylinder, which is a cylinder on the intake stroke side, through said intercylinder gas channel, and exhaust gas discharged from the following cylinder is led to said exhaust passage;

a spark-ignition engine controller including:

the operation condition identifier for determining an engine operation condition based on an engine speed and an engine load;

an intake air quantity control means for controlling an amount of ~~an~~ air to be supplied to the preceding cylinder in such a manner that the air/fuel ratio based on the amount of fuel required to both of said preceding and the following cylinders becomes a stoichiometric air-fuel ratio in said both cylinders in the two-cylinder connection state; and

a combustion controller including:

~~an~~ fuel injection means for injecting fuel at a certain timing in which an

amount of fuel injected to both of said preceding and following cylinders is determined in accordance with a required torque in the state of two-cylinder connection; and

an ignition controller for controlling an ignition timing;

said combustion controller which, during said two-cylinder connection, causes combustion to be performed in said preceding cylinder at an air-fuel ratio which is leaner than the stoichiometric air-fuel ratio by a predetermined amount, and causes combustion in said following cylinder at a predetermined air-fuel ratio by feeding fuel to the lean air-fuel ratio burned gas introduced from said preceding cylinder,

said combustion controller performing control such that, in at least a part of an operating range in which said two-cylinder connection is set, combustion is performed in said following cylinder through compression ignition, and

said combustion controller controlling, in a low-load region among said operating range in which the two-cylinder connection is set, said injection controller and said ignition controller such that an air-fuel ratio of the preceding cylinder is set such that an excess air ratio of the preceding cylinder becomes ~~three or greater than~~ at least three and a combustion is performed in the following cylinder by spark ignition at an air-fuel ratio being equal to a stoichiometric air-fuel ratio.